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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,783

03/28/2006

Toru Onodera

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EXAMINER

LENIHAN, JEFFREY S

ART UNIT

PAPER NUMBER

1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,783	<b>Applicant(s)</b> ONODERA ET AL.	
	<b>Examiner</b> Jeffrey Lenihan	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/02/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office Action is responsive to the amendment filed on 11/06/2008 and the supplemental filing on 12/02/2008.
2. The objections and rejections not addressed below are deemed withdrawn.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

### ***Claim Objections***

4. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 states that the weight composition ratio of the acid-containing segment to the acid-free segment in the block copolymer of claim 1 is from 5:95 to 40:60. This range is broader in scope than the newly added range of 10:90 to 33:67 recited in the amended parent claim.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1796

7. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 14 recites the broad recitation that the acid-containing segment is represented by the generic formula (1), and the claim also recites that said acid-containing segment is represented by the formula (4) which is a species of the generic formula and therefore is the narrower statement of the range/limitation. This limitation is inherited by dependent claims 15-22.

### ***Claim Rejections - 35 USC § 102***

8. Claims 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano et al, WO 2002/091507 (of record). Hirano et al, US7258941, has been used herein as an equivalent English translation of WO 2002/091507.

Art Unit: 1796

9. Newly added independent claim 14 recites a block copolymer having acid-containing and acid-free segments having specific structures, wherein the structures of each segment were recited in previously presented claims 1 and 5. Newly added claims 15-22 depend from claim 14 and recite the same limitations as previously presented claims 6-13.

10. The newly added claims are rejected as per the reasons outlined in paragraphs 3 to 10 of the previous Office Action, incorporated herein by reference.

11. Claims 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinouchi et al, WO 2003/046080 (of record). Kinouchi et al, US2005/0069780, has been used herein as an equivalent English translation of WO 2003/046080.

12. Claims 14-19 are rejected as per the reasons outlined in paragraphs 12-15 of the previous Office Action, incorporated herein by reference. Kinouchi discloses that the block copolymer compositions of US2005/0069780 are intended for use in fuel cells (¶0001) (claims 20-22).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1796

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinouchi et al, WO 2003/046080 (of record). .

16. A discussion of the disclosure of Kinouchi may be found in paragraphs 11-15 of the previous Office Action, incorporated herein by reference (claims 1-10). The polymer compositions are intended for use in fuel cells (¶0001) (claims 11-13).

17. Amended claim 1 recites the new limitation that the weight composition ratio of the acid-containing segment to the acid-free segment of the block copolymer falls within the range of 10:90 to 33:67. Per applicant's argument's submitted on 11/06/2008 (page 5, paragraph 4), the weight fraction of the acid-containing segment therefore ranges from about 0.1 to about 0.33. As noted in paragraph 13 of the previous Office Action, Kinouchi teaches that the weight fraction of the acid-containing hydrophilic segment falls within the range of 0.05 to 0.95 (¶0120). The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art to prepare a block copolymer having the claimed weight composition ratio in accordance with the teachings of Kinouchi.

Art Unit: 1796

18. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano et al, WO 2002/091507.

19. A discussion of the disclosure of Hirano may be found in paragraphs 2-10 of the previous Office Action, incorporated herein by reference (claims 1-13).

20. Regarding the amendment to claim 1, the examiner notes that it was known to vary the weight fraction of the acid-containing segment in the block copolymer to alter the proton conductivity of the block copolymer. Similarly, it was known to vary the weight fraction of the acid-free segment to alter the solubility properties of the block copolymer. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the weight composition ratio of the acid-containing and acid-free segments in the block copolymer described by Hirano through routine experimentation to obtain a block copolymer having the optimum balance of proton conductivity and solubility for a given application.

### ***Response to Arguments***

21. Applicant's arguments filed 11/06/2008 have been fully considered but they are not persuasive. Applicant argues that the block copolymers disclosed by Kinouchi in Synthesis Examples 2-5 are characterized by a weight fraction of the acid-containing segment of 0.49, 0.45, 0.38, and 0.46. Applicant argues that Kinouchi does not teach the claimed copolymers because these values fall outside the claimed range.

22. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442,

Art Unit: 1796

169 USPQ 423 (CCPA 1971) (MPEP § 2123 [R-5]). As discussed above, Kinouchi teaches that the weight fraction of the acid-containing segment of the disclosed block copolymer falls within the range of 0.05-0.95. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP § 2144.05 [R-5]). As the claimed weight composition range falls within the range disclosed by Kinouchi, the examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to prepared a block copolymer having the claimed weight composition ratio of acid-containing segments to acid-free segments based on the teachings of Kinouchi.

23. Applicant applies similar arguments to rejection of the pending claims over Hirano. As discussed above, the weight fractions of the acid-containing segment and the acid-free segments in the block copolymer disclosed by Hirano were known to be result-effective variables, affecting the proton-conductive properties and solubility properties of the block copolymer, respectively. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art to optimize said weight fractions to obtain the optimum balance of properties for a given application.

24. As neither newly added independent claim 14 nor any of its dependent claims 15-22 recite a weight composition ratio of the block copolymer, applicant's arguments do not apply to these claims.

### **Conclusion**



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Lenihan whose telephone number is (571)270-5452. The examiner can normally be reached on Monday through Thursday from 7:30-5:00 PM, and on alternate Fridays from 7:30-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Jeffrey Lenihan  
Examiner, Art Unit 1796

/JL/